M7225
Handheld Computer

User's Guide

Effective date: **February 2010**

Revision History

February 1, 2010 - Initial version

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FCC Declaration of Conformity
Product Name: Model 7225 Handheld Computer
Model Number: M7225

Radio Frequency Interference Requirements

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This equipment may not cause harmful interference, and (2) this equipment must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If you determine the equipment does cause harmful interference to radio or television reception (this may be determined by monitoring the interference while turning the equipment off and on), you are encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or TV technician for help.

Changes or modifications not expressly approved by American Microsystems, Ltd. could void the user's authority to operate the equipment.

Normalización y Certificación Electronica (NYCE)

Safety

NOM/NYCE-NOM-019-SCFI-1998
Safety of data processing equipment

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www.amltd.com

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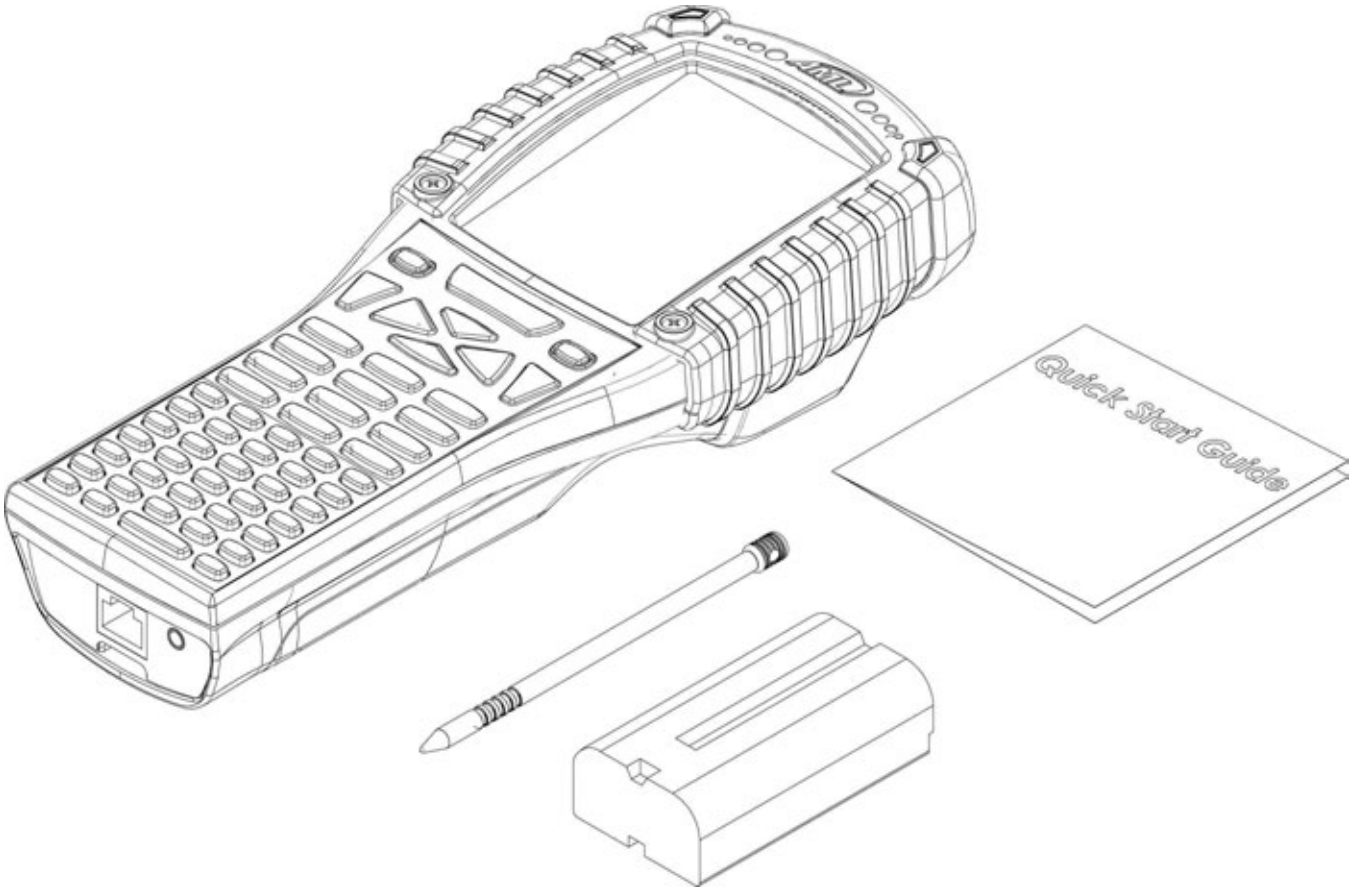
Chapter 1 - Getting Started

Unpacking

Verify that all of the following items are included with the terminal:

- M7225 Hand-held Computer
- Main Battery (14.4Wh)
- Plastic Stylus
- Quick Start Guide

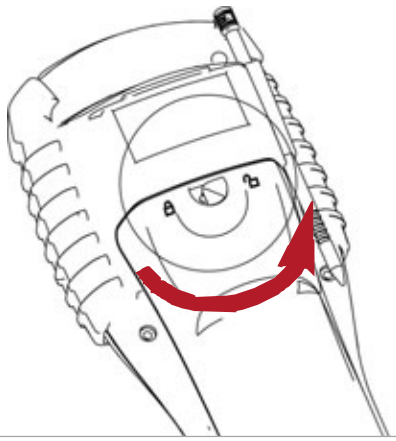


Installing the Main Battery

M7225 Handheld Units

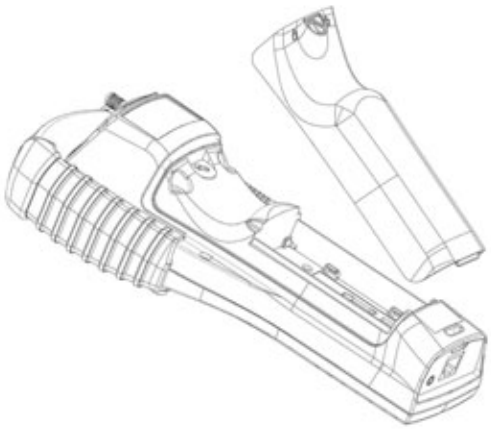
1

Unlock the battery compartment by turning the access latch counter-clockwise.



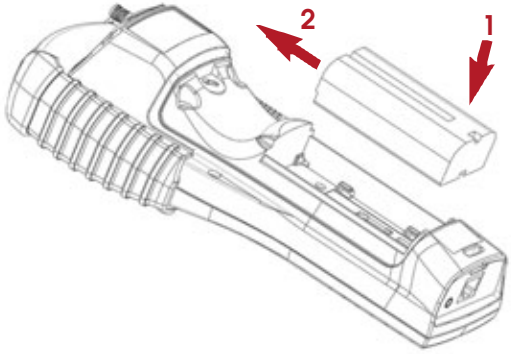
2

Remove the battery door by hinging it upward.



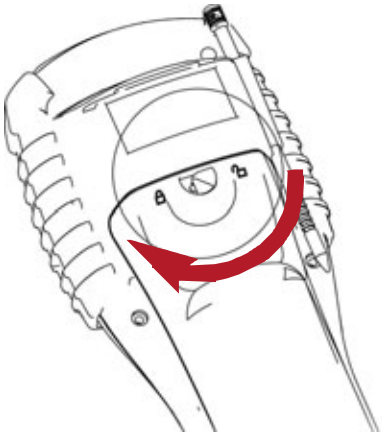
3

Insert the main battery near the rear of the compartment and slide towards the front to engage.



4

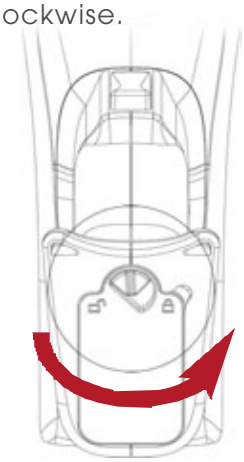
Replace the battery door and lock the access latch.



M7225 Pistol-Grip Units

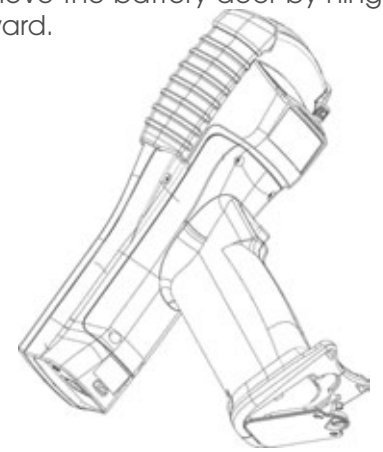
1

Unlock the battery compartment by turning the access latch counter-clockwise.



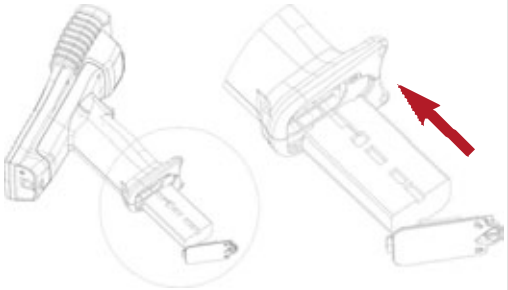
2

Remove the battery door by hinging it upward.



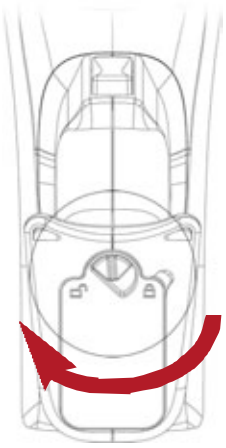
3

Insert the main battery near the rear of the compartment and slide towards the front to engage.

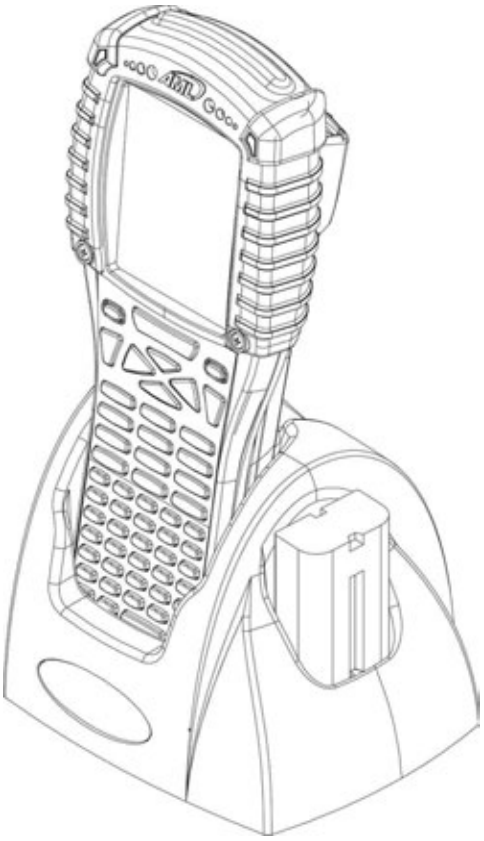


4

Replace the battery door and lock the access latch.



Charging the M7225



The M7225 uses two batteries to supply power to the system. During normal operation, the unit is powered from the main battery pack installed in the rear battery compartment. During battery changes, the system's memory is retained by an internal backup battery.

The main battery is charged through the port located on the bottom of the M7225 unit. To charge the main battery, insert the M7225 into a charging cradle or a communications cradle.

The internal backup battery will be charged from the main battery only when the main battery contains at least a 60% charge. This limits the power being drawn from the main battery and conserves main battery life. The backup battery will also charge when the M7225 is seated properly in a charging cradle without regard to the main battery charge state.

IMPORTANT: Only use AML batteries and chargers. Use of any non-AML branded batteries or chargers may cause damage not covered under warranty.

Battery Charge Times

	Before Initial Use	Full Charge Time
Main Battery	4 hours	5 hours
Backup Battery	1 hour	2 hours

System Boot and Startup

When a charged main battery is inserted into the M7225 for the first time, the unit will automatically power on and start the Initial Program Load (IPL) or "Cold Boot". This process will take about 4 minutes to complete. Do not press any keys on the keyboard or remove the main battery during the cold boot process.

During cold boot, the Windows Embedded CE 6.0 operating system is copied out of the internal flash memory into the unit's RAM. Once copied, Windows CE will run fully out of the much faster RAM memory. Running the operating system from RAM rather than directly from the Flash memory allows applications to run more quickly and smoothly in the operating system.

After the boot process completes, the M7225 will let the user calibrate the touch screen and set the system's real-time clock.

The Welcome screen will appear after the system has fully booted.

Welcome
The following screens will allow you to calibrate your stylus and set the system time and date.
Please click next to continue
or
Exit to Abort
Next >>
Exit

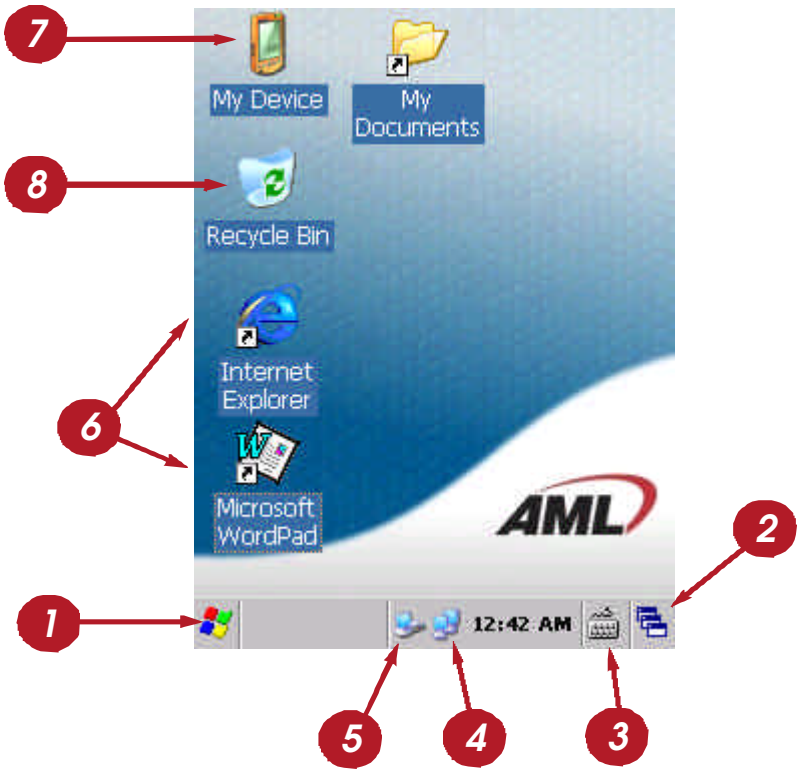
Calibrate the touch screen by pressing down on the screen with a stylus where indicated.

Carefully press and briefly hold stylus on the center of the target. Repeat as the target moves around the screen.
Press the Esc key to cancel.

Set the real-time clock to the current time and date.

Using Windows Embedded CE 6.0

After completing the touchscreen calibration and time setup, the M7225 desktop will appear. Users that are familiar with Microsoft Windows desktop PCs will find the functionality of Windows Embedded CE 6.0 familiar.



1	Start Button – Used to access system functions and applications
2	Current Windows List – Used to view all open windows
3	SIP Icon – Used to enabled/disable the software keyboard
4	Wireless Network Status – Shows the current status of the wireless network and used to access wireless security settings
5	USB ActiveSync Status – Shows current status of the ActiveSync connection
6	Program Icons – Used for quick access to user programs
7	My Device Icon – Gives access to system files and Control Panel
8	Recycle Bin – Used to store files that are to be deleted

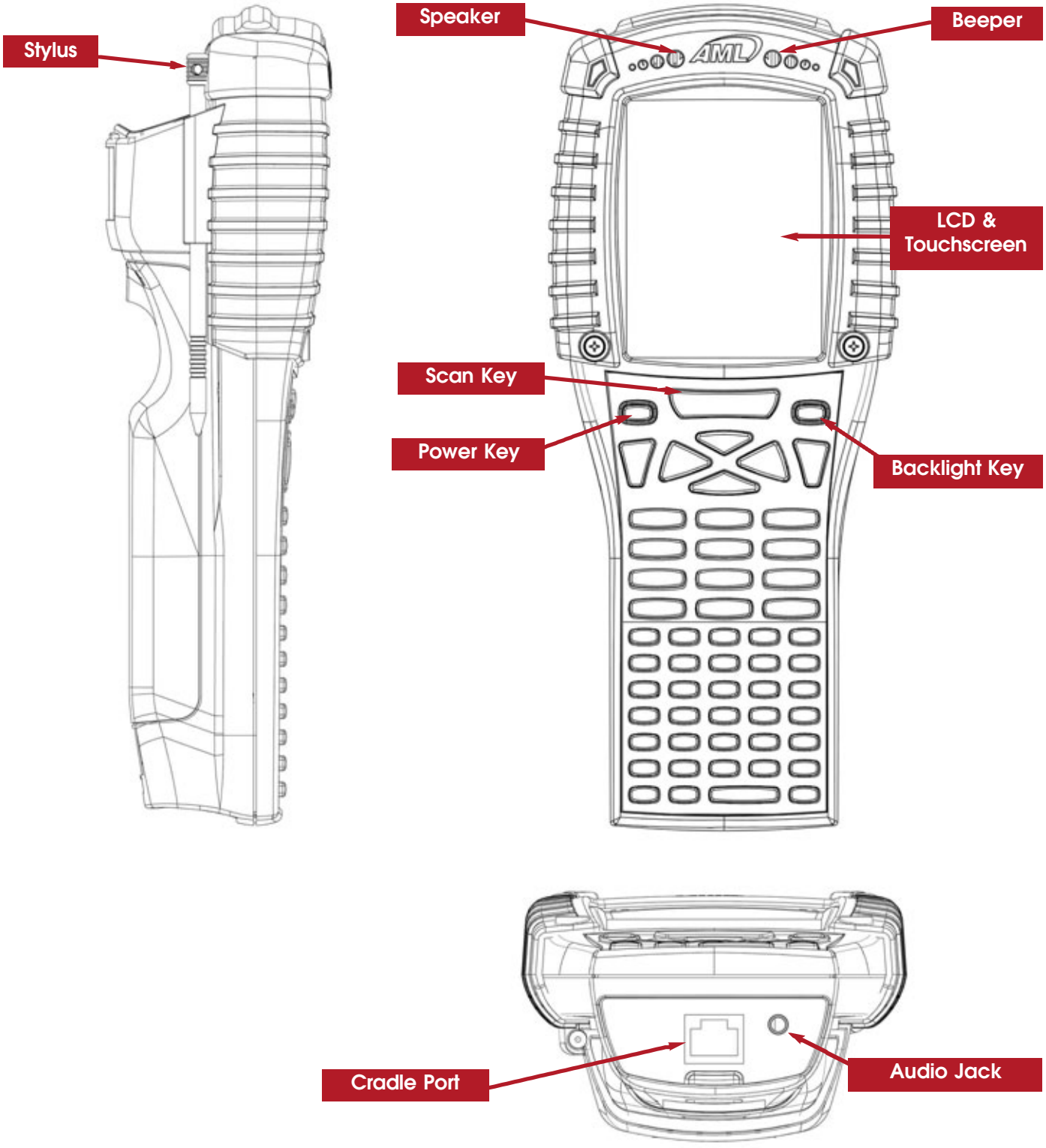
Control Panel

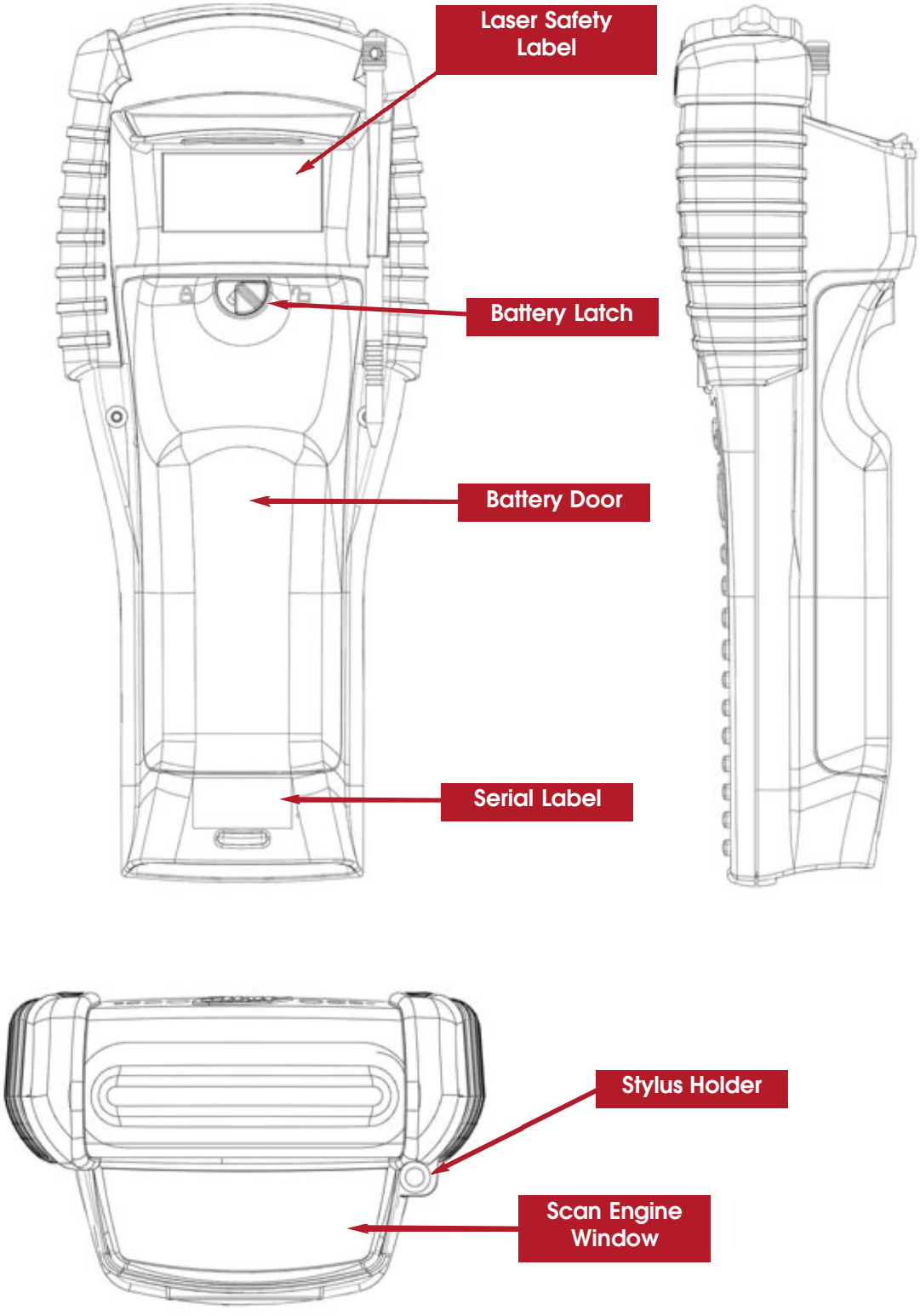
The Control Panel houses all system configuration and settings applications.

	Barcode Config	Configure the integrated barcode scanner options		**Network & Dial-up**	Modify general networking settings
	Bluetooth	Search for and pair with other Bluetooth devices		**Owner**	Configure information about the owner of the device
	Certificates	Manage security certificates for wireless security and internet encryption		**Password**	Enable password protection
	Date/Time	Adjust the system's date and time settings		**PC Connection**	Adjust how the unit connects to a PC via ActiveSync
	Dialing	Configure remote dialing		**Power**	View battery status and configure power management options
	Display	Setup and configure the display and backlight		**Radio Power**	Enable and disable different wireless radios to save power
	Input Panel	Modify how the on-screen keyboard functions		**Remove Programs**	Remove previously installed programs
	Internet Options	Configure internet settings like Proxy servers and web browser home page		**Storage Manager**	View information about storage cards and user flash storage
	Keyboard	Configure how the general keyboard system works		**Stylus**	Calibrate the touchscreen
	M7225 Info	View information about the M7225 such as Firmware Version		**System**	View information about the Windows Embedded CE OS
	Mouse	Configure how the mouse works		**Volume & Sounds**	Adjust the system volume and audio events

Chapter 2 – M7225 Hardware

External Drawings




Laser Safety Label
Battery Latch
Battery Door
Serial Label
Stylus Holder
Scan Engine Window

Communications Port

The bottom of the M7225 houses the communications port that is used to transfer data and information between the unit and external devices via a communications cradle.

Headphone & Microphone Jack

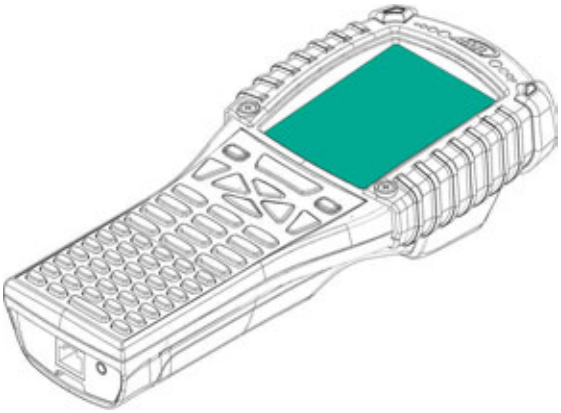
A standard 3-ring 1/8" headphone jack is located on the bottom of the unit. This connector provides mono audio output and mono microphone input. This jack is suitable for most mono-earphone + microphone headsets available for cordless telephones, cell phones, and industrial products.

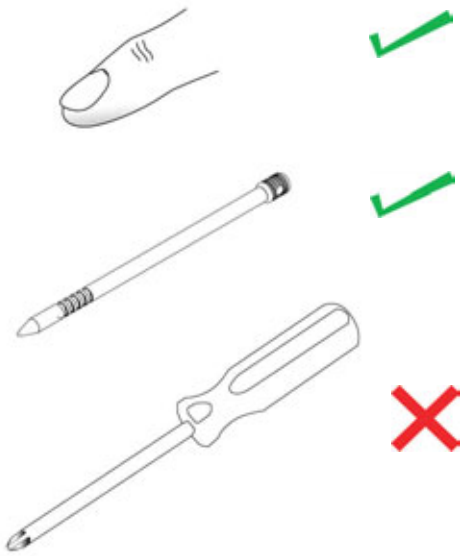
LCD and Touchscreen

The M7225 hand-held computer uses a 3.5 inch 240x320 (Quarter-VGA) Liquid Crystal Display with a resistive touch panel overlay. Tapping the display at any given point will generate a "mouse click" at that location.

Unlike many modern cell-phones, the M7225 uses a resistive-type touchscreen that can be used with gloved fingers or a plastic tipped stylus.

NEVER USE METAL OR SHARP OBJECTS ON THE TOUCHSCREEN.





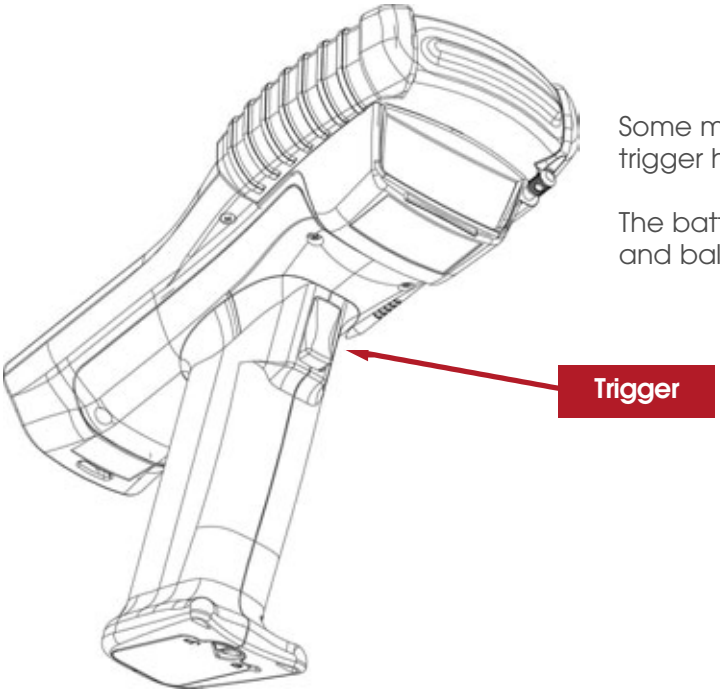
Calibration Drift

Environmental changes such as temperature or humidity may cause the touchscreen calibration to drift. When the location touched on the touchscreen does not match up with the area of the perceived "mouse click" within the operating system, the user should recalibrate the touchscreen from the Stylus application in Control Panel.

Handstrap and Trigger Handle

When not equipped with a pistol trigger handle, the M7225 uses a high-quality comfort strap to aid users when working with the unit. The bottom clip of the strap slides into the recess at the bottom of the M7225 to give access to the battery compartment.

NOTE: Removal of the strap is not recommended.



Some models of M7225 are equipped with a pistol-grip-type trigger handle.

The battery is housed in the handle for better weight transfer and balance.

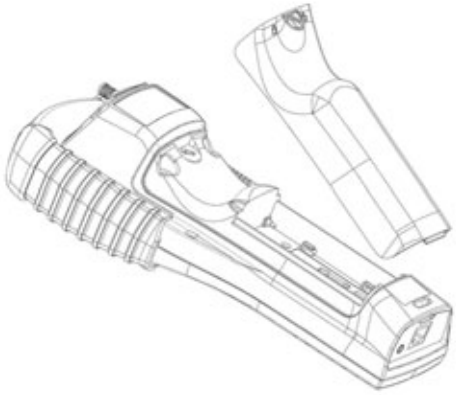
Installing a MicroSD Card

The M7225 has a user accessible microSD card slot in the main battery compartment. This slot can accomidate up to a 4GB microSD card for use additional memory expansion. The SD card will be mounted as "Storage Card" in the operating system.

M7225 Handheld Units

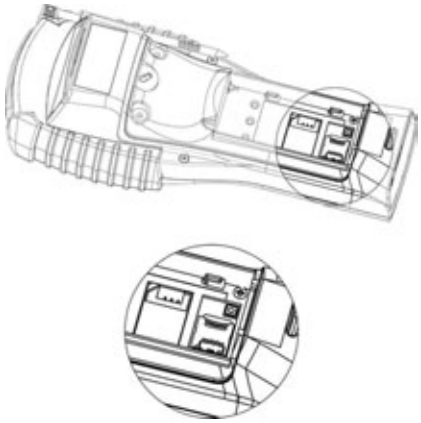
1

Remove the battery compartment cover and main battery.



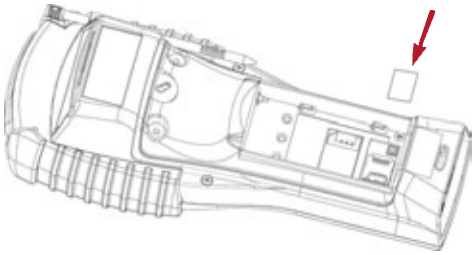
2

Locate the microSD card slot. To open the socket, slide the metal tab to the right and hinge upward.



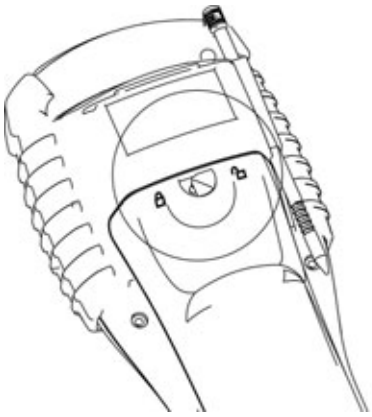
3

Insert the microSD card fully into the slot. Hinge the tab downward and slide into the locked position.



4

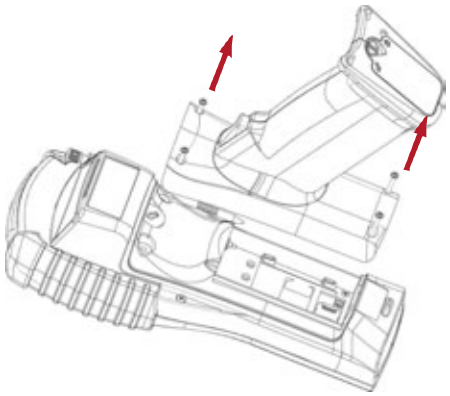
Replace the battery door and lock the access latch. ***THE UNIT MUST BE COLD BOOTED AFTER INSERTING A SD CARD!***



M7225 Pistol-Grip Units

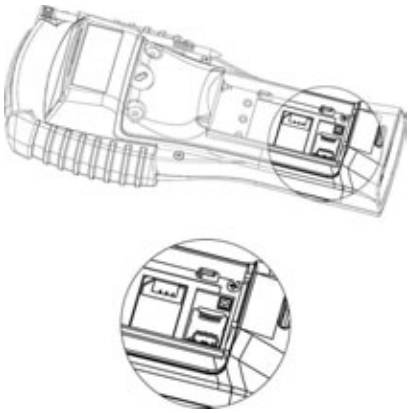
1

Remove the battery and loosen the four pistol grip screws with a Phillips style screwdriver.ch counter-clockwise.



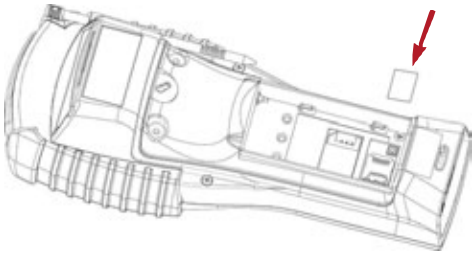
2

Locate the microSD card slot. To open the socket, slide the metal tab to the right and hinge upward.



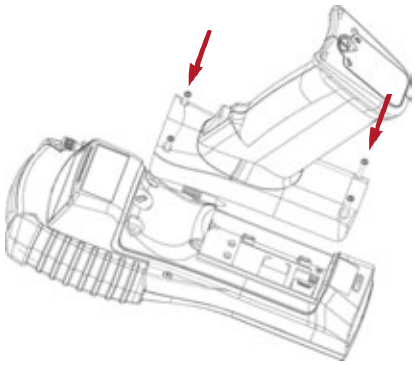
3

Insert the microSD card fully into the slot. Hinge the tab downward and slide into the locked position.



4

Replace the pistol-grip and tighten the four screws. ***Do not over-tighten the screws! THE UNIT MUST BE COLD BOOTED AFTER INSERTING A SD CARD!***



Power Management

The M7225 is designed to be an "always-on" device. The possible power management states of the M7225 are as follows:

	Main Battery	Backup Battery	System
Powered Down	Not Installed	Disabled	System is in a dead state. Inserting a main battery will cause a cold boot.
Powered On - Running	Powering Unit	Disabled	System is up and running fully. This is the normal operating mode. If the main battery is removed, the system will automatically switch to suspend and the back-up battery will retain system memory.
Powered On - Suspend	Powering Unit	Disabled	Main battery will supply power if installed. If main battery is removed, backup battery will keep memory retained.
Powered On - Suspend	Not Installed or below minimum charge	Powering Unit	If the main battery is removed during normal operation, the unit will be forced into suspend mode and the backup battery will proved necessary power.

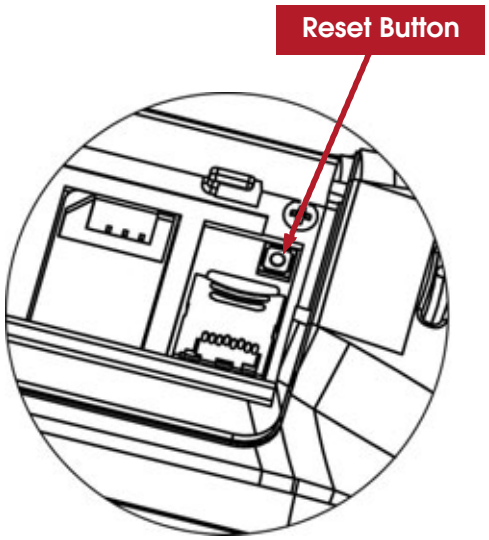
To switch between Suspend and Running states, press the button once.

Cold Booting

M7225 Handheld Units

To fully power down the M7225, remove the main battery and press the internal RESET button located in the battery compartment.

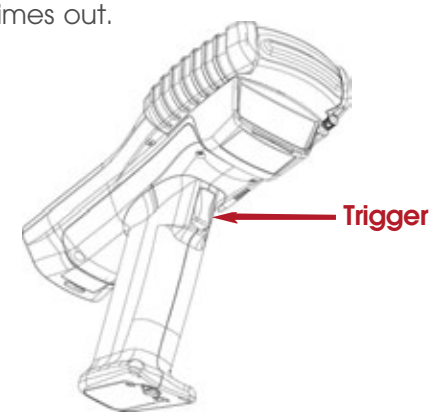
The system will perform a cold boot upon the next main battery insertion.



M7225 Pistol-Grip Units

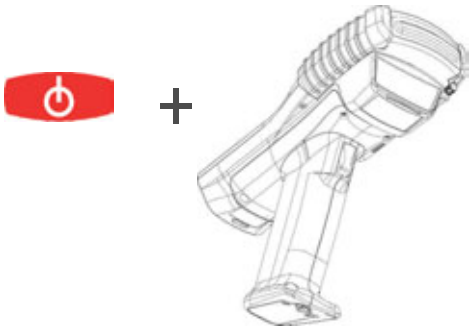
1

With the unit powered on, hold down the trigger until the barcode scanner times out.



2

While still holding the trigger, press the button. Release the trigger and .



3

Wake the unit from suspend by pressing the The red keyboard LED will indicate that the backup battery has been disabled.

4

Remove the battery. The M7225 is now fully powered down. Upon insertion of a battery, the unit will perform a Cold Boot.

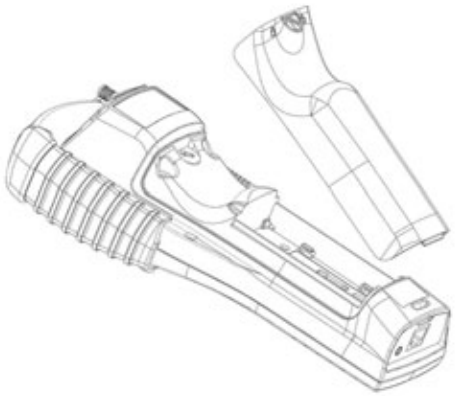
Clean Booting

The M7225 utilizes a persistent storage model where performing a cold boot will not cause the system to lose user data stored on the main file system. To restore factory settings and format the main file system complete, perform a CLEAN boot procedure as outlined below.

M7225 Handheld Units

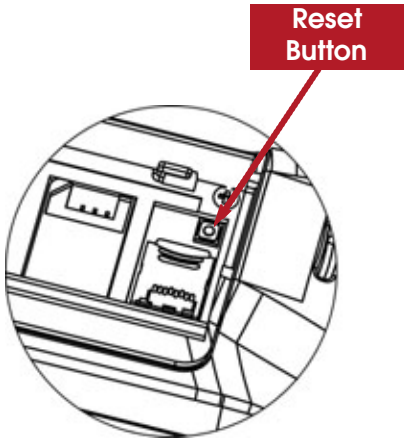
1

Remove the battery compartment cover and main battery.



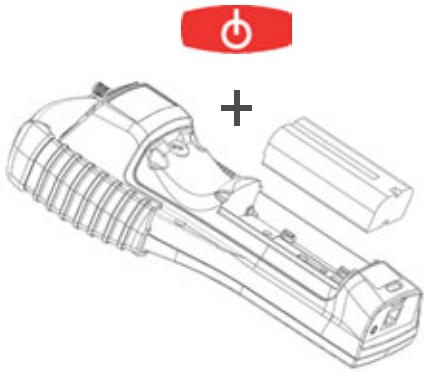
2

Press the internal RESET button.



3

While holding down the button on the keypad, re-insert the main battery and replace the battery cover.



4

The unit will display CLEAN BOOTING on the LCD to confirm the procedure. Once the message is visible, release the power button.

M7225 Pistol-Grip Units

Power down the M7225 as described in the Cold Booting section. Hold down the button when re-inserting the main battery. The unit will display **CLEAN BOOTING** on the LCD to confirm the procedure.

Once the message is visible, release the button.

Chapter 3 – Using the Keypad

The M7225 Terminal is equipped with fifty-five keys that are divided into grey, black, blue, and green keys. When pressed, each key emits an audible beep to indicate that the M7225 terminal has detected the key press.

System Control Keys

The key suspends and resumes the M7225 unit. During normal operation, when the key is pressed once, the system will switch to the low power suspend or "sleep" mode. Pressing again will return the unit to the fully operational mode.

During normal operation, if the unit is idle for more than 30 seconds, the LCD backlight will automatically dim to save battery power. Pressing the key will restore the backlight to the user definable setting.

The button activates the M7225 scan engine. The button is conveniently located for right or left hand use.

The top portion of the keypad consists of four arrow keys and two Enter keys.

Func, Shift, Alt, & Ctrl

Pressing FUNC, SHIFT, ALT, or CTL selects special functions of each key as determined by the current application. Pressing FUNC followed by a number key selects the F-key of the same number.

To toggle Caps Lock on or off, hold Func and press Shift.

Menu

Pressing the

key will bring up the standard Windows Embedded CE 6.0 Start Menu.

General Keys

The keypad is designed to function like a standard PC keyboard. To all applications running on the Windows Embedded CE operating system, the keyboard will function like any other keyboard input.

Chapter 4 – Barcode Scanning

The M7225 handheld terminal normally comes equipped with a barcode scan engine that is capable of scanning single dimensional and, optionally, two-dimensional barcodes.

Available Scanner Types

Types	1D	Stacked	2D	Scanning Method
Standard Laser	✓	✓		Uses a moving laser light & a standard laser detector.
Long Range Laser	✓	✓		Uses a moving laser light with a highly sensitive laser detector.
2-Dimensional Imager	✓	✓	✓	Uses LED light & a CCD detector to "image" the bar code.

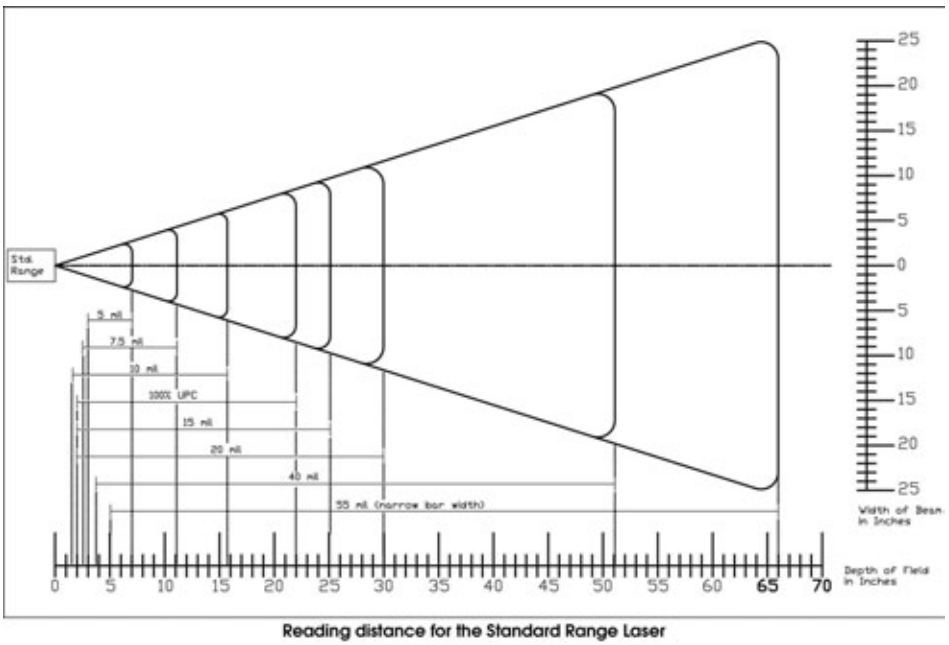
Supported Symbologies

Symbologies	Standard Laser	Long Range Laser	2-Dimensional Imager
UPC/EAN	✓	✓	✓
Code 128	✓	✓	✓
Code 39	✓	✓	✓
Code 93	✓	✓	✓
Code 11	✓	✓	✓
Interleaved 2 of 5	✓	✓	✓
Discrete 2 of 5	✓		✓
Chinese 2 of 5	✓		✓
Codabar	✓	✓	✓

Symbologies	Standard Laser	Long Range Laser	2-Dimensional Imager
MSI	✓	✓	✓
RSS/GS1	✓	✓	✓
Postal Codes			✓
Aztec			✓
Code 16K			✓
Code 49			✓
DataMatrix			✓
MaxiCode			✓
MicroPDF			✓
PDF417			✓
QR Code			✓
Codablock			✓

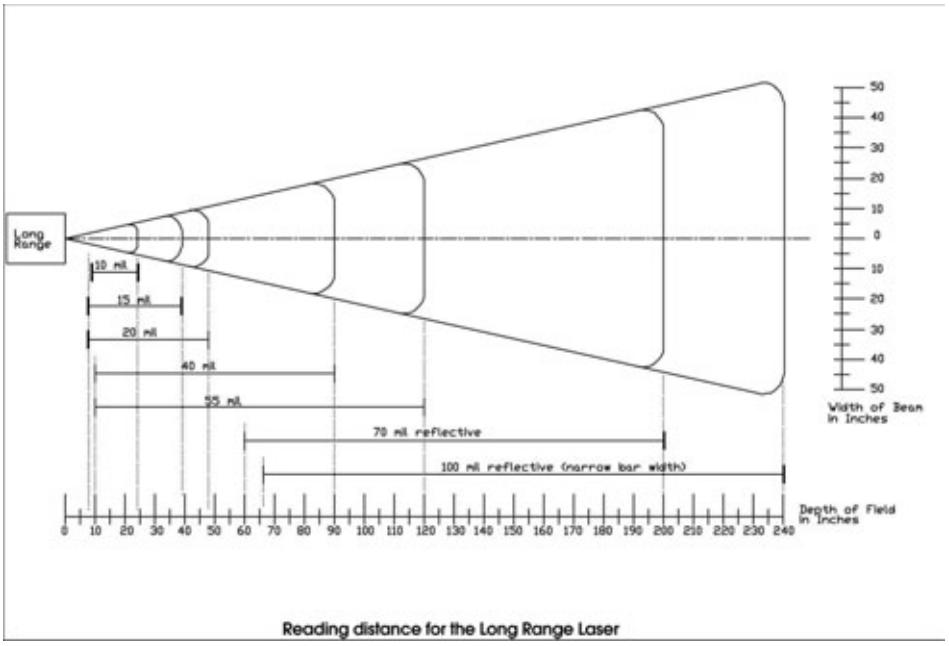
Scanner Reading Distances

Standard Range Laser


Std. Range
5 mil
7.5 mil
10 mil
100% UPC
15 mil
20 mil
40 mil
55 mil (narrow bar width)
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70
Depth of Field in Inches
25 20 15 10 5 0 5 10 15 20 25
Width of Beam in Inches

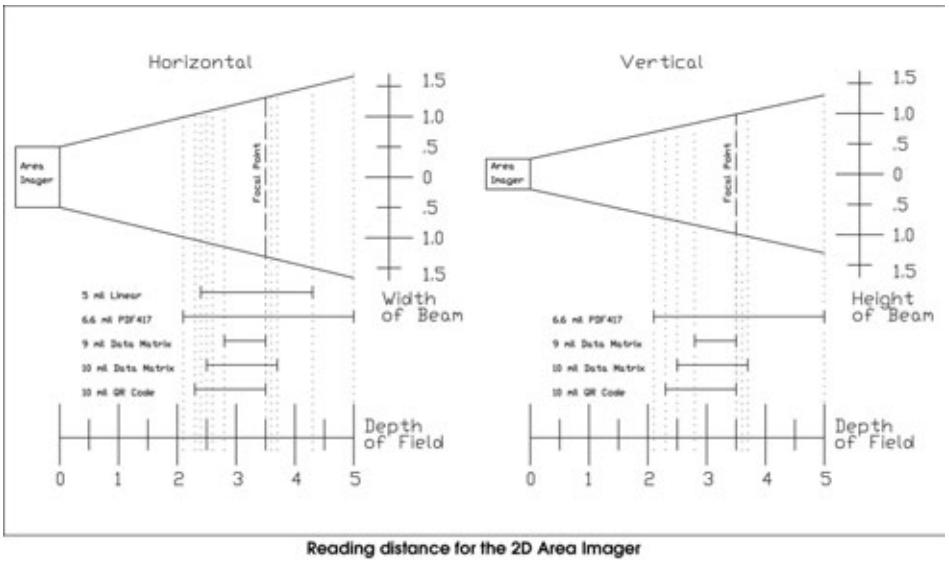
Reading distance for the Standard Range Laser

Long Range Laser



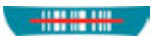
Reading distance for the Long Range Laser

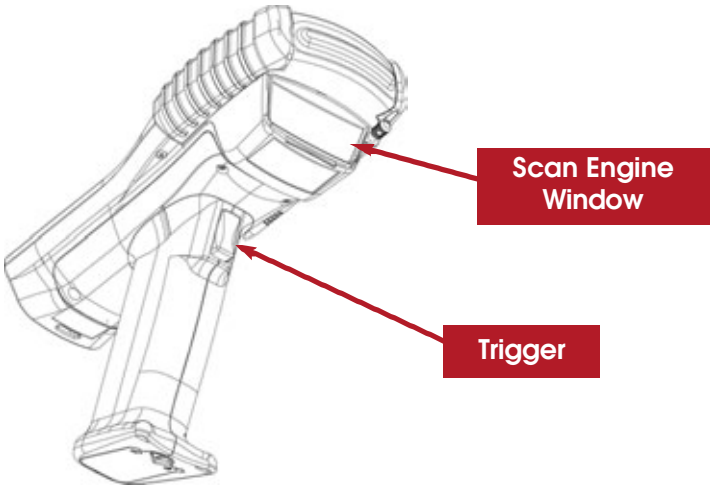
2D Imager



Reading distance for the 2D Area Imager

SCAN Button and Trigger

The M7225's internal barcode scanners are designed to be manually triggered by the operator by either pressing the keypad's  button or by pulling the trigger if the unit is equipped with a pistol-grip-type handle.



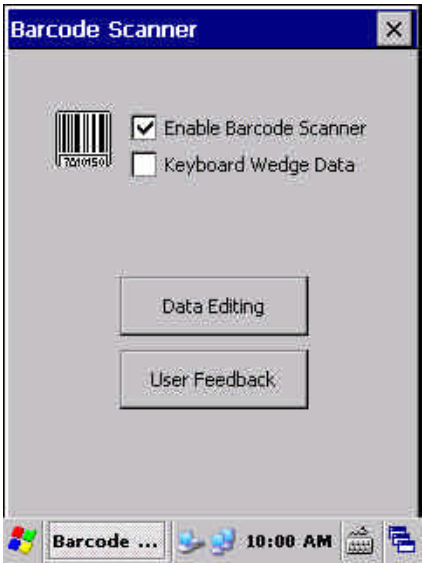
Scanning Barcodes

M7225 units equipped with the laser scan engines require proper alignment of the bar code under the scanner window.

The 2D, omni-directional imager is capable of scanning bar codes at any orientation as long as the entire symbol is visible to the scanner and illuminated.

Configuring the Barcode Scanner

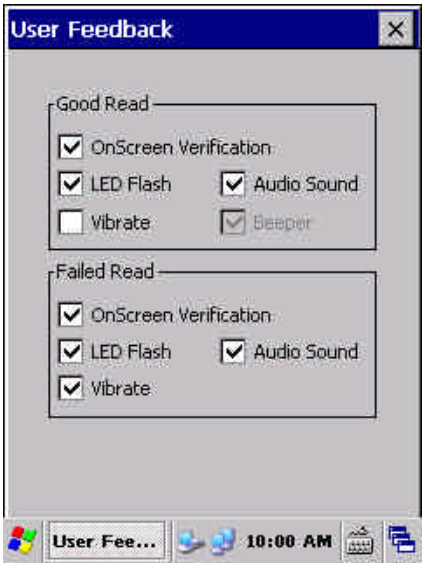
The barcode scanner can be configured by selecting the Barcode Setup icon in Control Panel.



Barcode Scanner Modes

The internal barcode scanner can be used in two different data modes: keyboard wedge and serial. When used in keyboard wedge mode, scanned barcode data will be seen as if the user had typed the data on the keypad. This allows easy integration into applications that do not explicitly support barcode scanners.

When keyboard wedge mode is disabled, the barcode data is not routed through the keyboard buffer. In this mode, the barcode data can be read by applications from the special "BCD1:" device.



User Feedback

To configure the user feedback settings for barcode scanning, select the User Feedback button.

Good Read Group

The checkboxes in the Good Read group enable and disable the different feedback options when a barcode is successfully scanned.

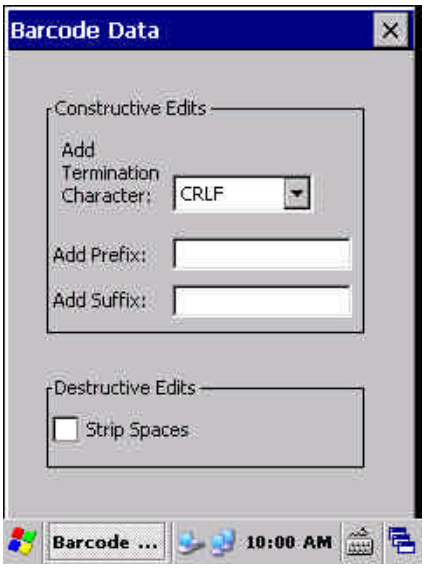
Failed Read Group

The checkboxes in the Failed Read group enable and disable the different feedback options to be utilized when the trigger or SCAN button is pressed, but no barcode is read.

Feedback	Good Read Group	Failed Read Group
OnScreen Verification	When enabled, the entire LCD screen will flash green after a good bar-code scan.	When enabled, the entire LCD screen will flash red after a failed barcode scan.
LED Flash	When enabled, the keyboard LED will blink green after a successful barcode scan.	When enabled, the keyboard LED will blink red after a failed barcode scan.
Vibrate	When enabled, the unit will slightly vibrate to indicate a good barcode scan.	When enabled, the unit will slightly vibrate to indicate a failed barcode scan.
Audio Sound	When enabled, the unit will play a good read sound through the audio speaker. The volume of this sound can be adjust-ed by changing the system volume in Control Panel.	When enabled, the unit will play an alert sound through the audio speaker. The volume of this sound can be adjusted by changing the sys-tem volume in Control Panel.

Data Editing

The Data Editing dialog allows the user to configure the basic data input stream of the barcode data.



Termination Character – adds a character to the end of all barcode scans

Prefix – Prepends the barcode data with the given string

Suffix – Appends the barcode data with the given string

Strip Spaces – Delete all space characters from the barcode data before processing

Prefix/Suffix Special Characters	
****	Literal backslash
\t	Tab character
\e	Escape character
\f	Form Feed character
\r	Enter Keypress
\n	Carriage Return
\l	Line Feed

Advanced Scanner Configuration

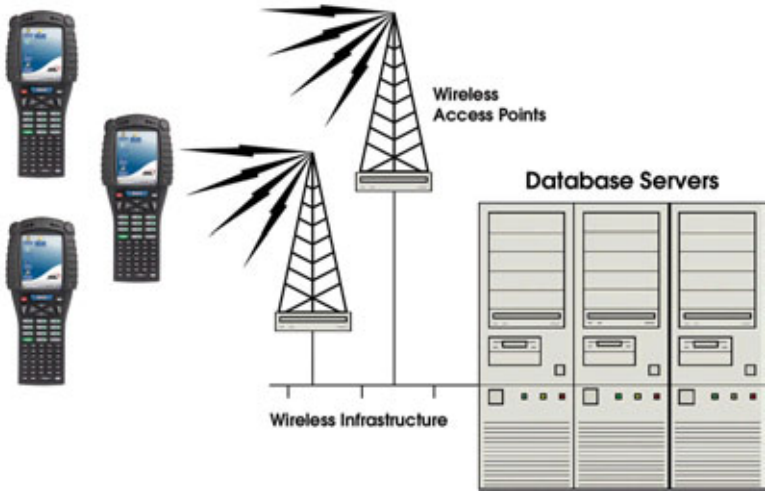
Further configuration of the barcode scanner properties is possible through configuration barcodes. For more information on how to obtain barcode scanner configuration manuals, contact AML.

Chapter 5 – Wireless Networking

General Overview

The M7225 can contain an optional 802.11b/g radio and internal antenna. This radio is specifically designed to communicate with any 802.11b/g Access Point.

The range of the radio depends greatly on the quality of the Access Point and the RF communications characteristic of the environment where the device is used. The typical range for an 802.11 radio is 300 feet through free air. Additional Access Points must be added to improve coverage in a larger area, or in electrically noisy RF environments.



802.11 Fallback

Wireless LAN technology is designed to make maintaining a connection between two devices as reliable and consistent as possible. Since the speed of the connection between wireless devices will vary as range and signal quality varies, the wireless devices will intentionally sacrifice throughput (data rate or connection speed as measured in bits per second) in exchange for maintaining a reliable connection. In other words, a reliable connection at a lower speed is preferred over an unreliable connection at a higher speed (i.e., it is easier to maintain the connection if data rate is deliberately reduced, or put another way, lower data rates will tolerate a higher range and/or worse signal quality). This characteristic is known as fallback. As example, an 802.11b system will fallback from 11 Mbps to 5.5 Mbps as range increases or signal quality decreases. Subsequent fallbacks from 5.5 Mbps to 2 Mbps and 1 Mbps are also supported.

Interference and Coexistence

802.11 operates in a range of radio frequencies known as an "unlicensed" band (i.e. the FCC does NOT require the use of a license in order to operate a radio transmitter in this range). This means that commercially available radio devices other than wireless LAN devices are permitted to use the same frequency band as 802.11. Consequently, these co-existing radio devices can interfere or "jam" the wireless LAN (and vice versa). The most troublesome devices are cordless telephones and microwave ovens.
Fortunately, higher quality cordless phones tend to "listen" for a clear channel before becoming active and will thus avoid interfering with a wireless LAN (i.e., the cordless phone seeks a clear channel for itself so naturally avoids being interfered with or being a source of interference). Jamming from microwave ovens is more severe but is usually restricted to the upper frequency range for 802.11 (it should be noted that 802.11b/g divides the available frequency band into 11 channels (US). The higher numbered channels are most susceptible to microwave oven interference).

In each instance, jamming occurs only when the cordless telephone or microwave oven is active.

Encryption and Authorization

Much has been publicized in the mass media recently about security problems with wireless LANs. Although it cannot be denied that some encryption algorithms currently used in 802.11 are flawed, the fact is that security breaches of a wireless LAN require a deliberate attempt to access the network by an intruder.

The primary issue is that many current users of wireless LAN have opted NOT to turn on security features. If users were to enable the security features currently available (including only allowing known systems access to the network and enabling WEP (Wired Equivalent Privacy) or WPA (Wifi Protected Access)) on even the most basic access points, the intruder's work is much harder. Much as a burglar will stray away from a house whose doors and windows are securely locked, so too will an attacker tend to move past a wireless network when even the simplest security measures are enables.

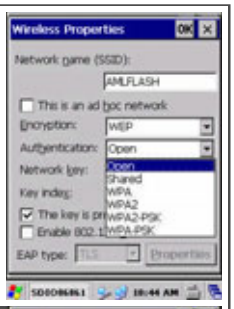
Configuration with ZeroConfig

To configure the M7225's wireless radio, enter the Windows Embedded CE 6.0 Wireless ZeroConfig utility by selecting the Network Status Icon on the desktop and scrolling over to the Wireless tab.

To configure the M7225's wireless radio, enter the Windows Embedded CE 6.0 Wireless ZeroConfig utility by selecting the Network Status Icon on the desktop and scrolling over to the Wireless tab.

1 Select the wireless network you wish to connect to and select "Connect".

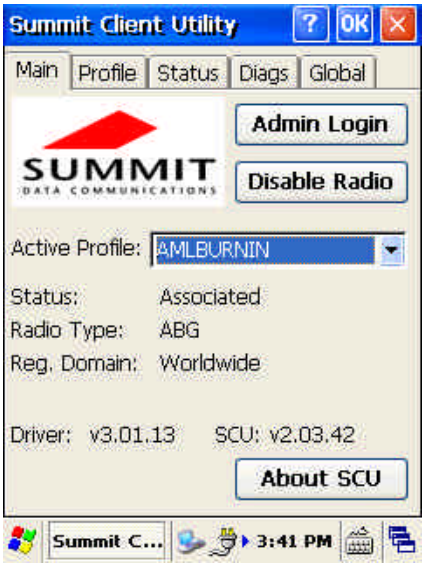
2 Select the proper Encryption and authentication types for your network. Note that not all encryptions are usable with all authentication types.



3 Once all values are configured for your network, select "OK".

Configuration with Summit Client Utility

When equipped with the optional Summit 802.11 radio, the Summit Client Utility (SCU) is used to configure the wireless network settings on the device.



SUMMIT
DATA COMMUNICATIONS

Visit Summit Data Communications website at **www.summitdatacom.com** for more information.

Chapter 6 – Communications Cradles

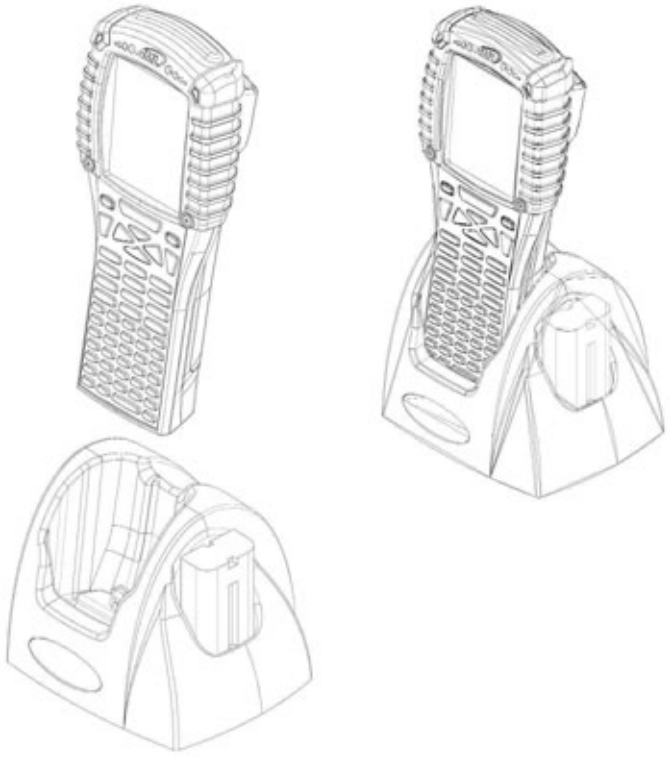
The M7225 Hand-held Computer has an optional charging and communications cradle, ACC-7225. The cradle automatically charges the M7225 batteries while it is resting in the cradle. The cradle also includes an extra slot to charge a spare main battery pack. The M7225 cradle can accommodate the M7225 with or without the optional trigger handle. Furthermore, the M7225 is backwards compatible with the ACC-5925 charging cradle for situations where the additional communication ports of the ACC-7225 are not needed.

ACC-7225 Features

Automatic battery charging
10/100 Ethernet
2 x USB Host
1 x USB Slave (Device)
3 Indicator LEDs
Spare battery charging slot

ACC-5925 Features*

Automatic battery charging
1 x USB Slave (Device)
3 Indicator LEDs
Spare battery charging slot

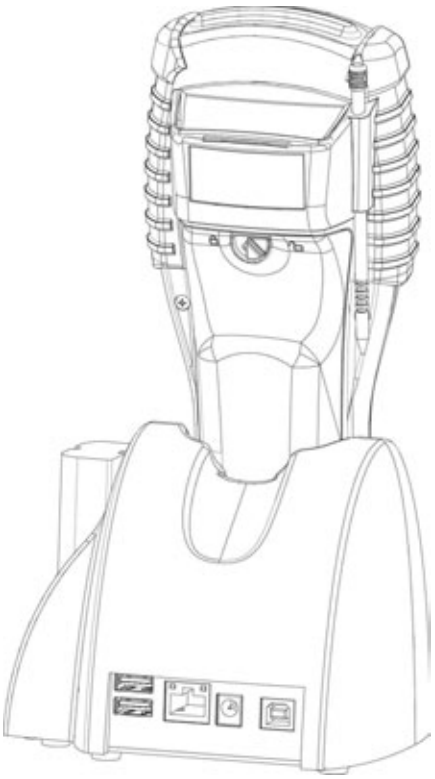


WARNING: THE M7225 DOES NOT BRING OUT RS-232 TO THE CRADLE. DO NOT CONNECT THE ACC-5925'S RS-232 PORT WHEN USING THE ACC-5925 FOR CHARGING THE M7225. DAMAGE TO THE M7225 CAN RESULT.

All compatible cradles have three indicator lights:

POWER - Indicates that the M7225 Cradle is plugged in.
MAIN - Indicates the M7225 main battery is charging.
SPARE - Indicates the spare battery is charging.

When the battery charging LED is red, the battery is charging. When the battery charge LED is green the battery is fully charged.



The ACC-7225 has four communication ports and one power jack located on the rear of the cradle. From left to right, these ports are:

2 x Stacked USB 1.1 Host - Full-size Type A
1 x 10/100 Ethernet Networking
1 x 2.1mm 5V DC Center Positive Power Jack
1 x USB 1.1 Slave – Full-size Type B

All configuration of the ports and setup of external devices connected to the ACC-7225 is done through the M7225 unit. The ACC-7225 has no internal or external settings that can be changed.

Specifications

General Specs	
Dimensions	225 mm L x 89 mm W x 57 mm D (8.9" L x 3.5" W x 2.3" D)
Weight	500g / 17.6 oz (w/o optional handle)
Display	3.5" QVGA (320x240), 16-bit Color TFT LCD
Touchscreen	Integrated Resistive Touch Panel
Keypad	55-key alphanumeric
Power	7.4V, 2200mAh Lithium-ion; 15.84 watt-hours
Internal Backup Battery	3.7V, 160mAh Lithium-ion; retains memory during battery swaps
I/O Ports	USB Host/Slave - expands through communication cradle
WLAN	Standard Internal 802.11b/g radio with integrated Bluetooth; Optional high-power (63mW) Summit 802.11a/b/g
WPAN	Bluetooth Class 2 on-chip with standard radio
Audio	Hi-Fi Digital Audio codec with up to 48MHz sample rate; Integrated Speaker and Amplifier; Internal headphone/microphone driver with standard 3.5mm jack; Integrated high-power scan engine beeper
Bar Code Scanning	Standard Range Laser; Optional Long Range Laser; Optional 2D Omni-Imager
User Feedback	OnScreen Scan Verification; Beeper/Speaker; Internal programmable vibration motor; Good/Bad read LED

Performance Specs	
Processor	Samsung® S3C2440 @ 400 MHz
Architecture	32-bit RISC ARM9 with AMBA (Advanced Microcontroller Bus Architecture)
Memory (RAM)	128 MB RAM
Memory (Flash storage)	128 MB Integrated Flash ROM
Memory Expansion	microSD Card Socket
Operating System	Windows® Embedded CE 6.0 R2
Software	Internet Explorer®; Remote Desktop; VT100/220, TN3270, TN5250 Emulation

Environmental Specs	
Operating Temp	-20° to 50° C / -4° to 122° F
Storage Temp	-30° to 60° C / -30° to 140° F
Humidity	0% to 90% RH, non-condensing
Electrostatic Discharge	15kVDC through air; 8kVDC contact
Sealing	IP54; NEMA 12

Wireless Radio Specs	
Radio	IEEE 802.11b/g
Frequency	2.4 GHz Range
Output Power	15 dBm (30 mW)
Receive Sensitivity	-90 dBm @ 1 Mbps, 8% PER
Security	None; 64/128 Bit WEP; WPA/WPA2 Personal (PSK); WPA/WPA2 Enterprise (EAP); 802.1X Authentication Supplicants

High-power Summit® Radio Specs	
Radio	IEEE 802.11a/b/g
Frequency	2.4 GHz Range
Output Power	18 dBm (63 mW)
Receive Sensitivity	-96 dBm @ 1 Mbps
Security	None; 64/128 Bit WEP; WPA/WPA2 Personal (PSK); WPA/WPA2 Enterprise (EAP); 802.1X Authentication Supplicants; Cisco Compatible Extensions (Version 4)

Bluetooth® Radio Specs	
Radio	IEEE 802.15 (On-chip with standard wireless radio)
Frequency	2.4 GHz Range
Output Power	4 dBm (Class 2)
Receive Sensitivity	-84 dBm @ 1 Mbps, 0.1% BER

Regulatory Specs	
Certifications	FCC, CE
Environmental	RoHS, Pb-Free

ACC-7225 Communications Cradle	
USB Port Expansion	1 x USB Slave; 2 x USB Host
Networking Expansion	10/100 Ethernet LAN
Battery Charging	1 x Spare Battery; 1 x M7225 unit

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